LAMPIRAN A

HASIL UJI MUTU FISIK GRANUL

Mutu fisik yang diuji	Replikasi	Formula			
		I	II	III	IV
Kadar air (%)	I	3,34	3,35	3,31	3,25
	II	3,01	3,04	3,39	3,49
	III	3,72	3,27	3,29	3,57
	Rata-rata	3,36	3,22	3,33	3,44
	SD	0,36	0,16	0,05	0,17
Waktu alir (detik)	I	9,8	9,7	9,9	9,9
	II	9,5	9,7	9,7	9,6
	III	9,6	9,8	9,8	9,7
	Rata-rata	9,63	9,73	9,8	9,73
	SD	0,15	0,06	0,1	0,15
Sudut diam (°)	I	30,40	31,24	29	28,66
	II	30,47	32,51	31,40	29,91
	III	31,05	31,67	30,18	28,95
	Rata-rata	30,64	31,81	30,19	29,17
	SD	0,36	0,65	1,20	0,65
Indeks kompresibilitas (%)	I	12	13	12	13
	II	13	12	12	12
	III	13	13	13	12
	Rata-rata	12,67	12,67	12,33	12,33
	SD	0,58	0,58	0,58	0,58

LAMPIRAN B

HASIL UJI KEKERASAN TABLET ASAM MEFENAMAT

Kekerasan Tablet Replikasi I

No	F I	F II	F III	F IV
1	8,6	8,4	7,5	6,6
2	8,6	8,5	7,7	6,7
3	8,6	8,7	7,7	6,6
4	8,1	8,5	7,6	6,6
5	8,3	8,5	7,1	6,3
6	8,2	8,3	7,9	6,2
7	8,3	8,9	7,9	6,3
8	8	8,1	7,8	6,5
9	8,1	8,6	7,2	6,5
10	8,5	8,7	7,6	6,5
Rata-rata	8,33	8,52	7,6	6,48
SD	0,23	0,23	0,27	0,16
KV	2,78	2,64	3,56	2,50

Kekerasan Tablet Replikasi II

No	F I	F II	F III	F IV
1	8,7	8,7	7,7	6,1
2	8,9	8,7	7,7	6,1
3	8,9	8,6	7,7	6,3
4	8,9	8,5	7,9	6,5
5	8,8	8,5	7,5	6,2
6	8,7	8,4	7,6	6,7
7	8,5	8,4	7,6	6,7
8	8,7	8,2	7,5	6,6
9	8,6	8,7	7,3	6,6
10	8,5	8,8	7,5	6,4
Rata-rata	8,72	8,55	7,6	6,42
SD	0,15	0,18	0,16	0,23
KV	1,78	2,16	2,19	3,69

Kekerasan tablet Batch C

No	F I	F II	F III	F IV
1	8,5	8,6	7,9	6,5
2	8,4	8,8	7,1	6,7
3	8,5	8,8	7,3	6,5
4	8,5	8,4	7,3	6,5
5	8,1	8,9	7,2	6,3
6	8,2	8,7	7,6	6,4
7	8,6	8,6	7,8	6,1
8	8,1	8,8	7,3	6,3
9	8,5	8,8	7,1	6,9
10	8,6	8,6	7,3	6,8
Rata-rata	8,4	8,7	7,39	6,5
SD	0,19	0,15	0,28	0,24
KV	2,31	1,71	3,80	3,77

LAMPIRAN C

HASIL UJI KERAPUHAN TABLET ASAM MEFENAMAT

Formula	Replikasi	Kerapuhan (%)	Rata-rata	SD	KV
I	I	1,66	1,62	0,22	13,39
	II	1,82			
	III	1,39			
II	I	1,43	1,40	0,09	6,62
	II	1,30			
	III	1,48			
III	I	0,75	0,71	0,04	4,92
	II	0,68			
	III	0,71			
IV	I	0,68	0,65	0,04	5,43
	II	0,61			
	III	0,65			

LAMPIRAN D

HASIL UJI WAKTU HANCUR TABLET ASAM MEFENAMAT

Waktu Hancur (menit)	Replikasi	Formula			
		I	II	III	IV
	I	19,8	16,8	11,5	10,9
	II	18,3	17,3	12	10,3
	III	19,1	17,9	11,9	9,8
	Rata-rata	19,07	17,33	11,8	10,33
	SD	0,75	0,55	0,26	0,55

LAMPIRAN E

HASIL PENETAPAN KADAR TABLET ASAM MEFENAMAT

Formula	Replikasi	Absorbansi	C Sampel (µg/ml)	C teoritis (µg/ml)	Kadar (%)	$\bar{X}$ ± SD	KV (%)
I	I	0,378	17,99	18,02	99,83	99,08 ± 0,70	0,71
	II	0,375	17,83	18,02	98,95		
	III	0,373	17,73	18,01	98,45		
II	I	0,383	18,25	18,02	101,28	100,54 ± 0,70	0,70
	II	0,378	17,99	18,01	99,89		
	III	0,380	18,10	18,02	100,44		
III	I	0,380	18,10	18,02	100,44	99,89 ± 0,56	0,56
	II	0,376	17,89	18,01	99,33		
	III	0,378	17,99	18,01	99,89		
IV	I	0,380	18,10	18,01	100,50	101,15 ± 0,70	0,69
	II	0,385	18,36	18,02	101,89		
	III	0,382	18,20	18,01	101,05		

LAMPIRAN F

HASIL UJI DISOLUSI TABLET ASAM MEFENAMAT PADA t = 45 MENIT

Formula	Replikasi	Absorbansi	Csampel (µg/ml)	Wt (mg)	% obat terlarut	$\bar{X}$ ± SD	KV
I	1	0,359	16,80	378	76,30	77,21 ± 1,98	2,56
	2	0,357	16,70	375,75	75,85		
	3	0,373	17,50	393,75	79,48		
II	1	0,360	16,85	379,13	75,42	75,42 ± 2,02	2,67
	2	0,369	17,30	389,25	77,43		
	3	0,378	16,40	369	73,40		
III	1	0,389	18,29	411,53	82,40	82,94 ± 7,31	8,82
	2	0,425	20,09	452,03	90,51		
	3	0,360	16,85	379,13	75,91		
IV	1	0,413	19,49	438,53	86,71	88,25 ± 5,81	6,56
	2	0,449	21,28	478,80	94,67		
	3	0,398	18,74	421,65	83,37		

LAMPIRAN G

CONTOH PERHITUNGAN

Contoh perhitungan sudut diam:

Formula I:

W persegi panjang = 5,33 gram

W lingkaran = 1,37 gram

Luas persegi panjang = 21,1 x 29,7 = 626,67 cm^2

Luas lingkaran = $\frac{1,37}{5,33}$ x 626,67 = 161,08

A = л.r^2

r^2 = $\frac{A}{\pi}$

= $\frac{161,08}{3,14}$

r = 7,16 cm

tg α = $\frac{t}{r}$ = $\frac{4,24}{7,16}$ = 0,5922

α = 30,64°

Contoh perhitungan indeks kompresibilitas

Formula I:

V1 = 100 ml

V2 = 88 ml

% kompresibilitas = $\left(1-\frac{V2}{V1}\right)x100\%$ = 12 %

Contoh perhitungan akurasi & presisi:

Absorbansi = 0,313 → y = 0,0191x + 0,0338

Konsentrasi sebenarnya = 14,59 ppm

Konsentrasi teoritis = 14,44 ppm

% perolehan kembali = (konsentrasi sebenarnya / konsentrasi teoritis) x 100%

= (14,59 / 14,44) x 100%

= 101,04 %

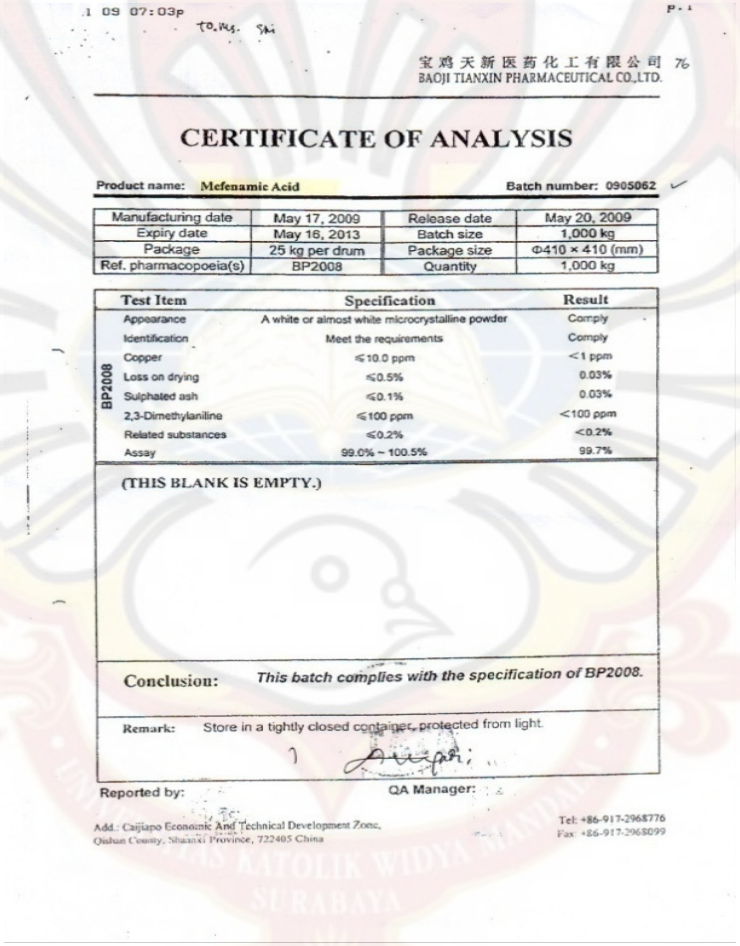
Untuk menghitung % KV = $\frac{SD}{\overline{X}}x100\%$

= 0,44 %

LAMPIRAN H

SERTIFIKAT ANALISIS BAHAN

Asam Mefenamat:



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TO.Mg. Shi

宝鸡天新医药化工有限公司 76
BAOJI TIANXIN PHARMACEUTICAL CO.,LTD.

CERTIFICATE OF ANALYSIS

Product name: Mefenamic Acid **Batch number:** 0905062

Manufacturing date	May 17, 2009	Release date	May 20, 2009
Expiry date	May 16, 2013	Batch size	1,000 kg
Package	25 kg per drum	Package size	Φ410 × 410 (mm)
Ref. pharmacopoeia(s)	BP2008	Quantity	1,000 kg

	Test Item	Specification	Result
BP2008	Appearance	A white or almost white microcrystalline powder	Comply
	Identification	Meet the requirements	Comply
	Copper	≤10.0 ppm	<1 ppm
	Loss on drying	≤0.5%	0.03%
	Sulphated ash	≤0.1%	0.03%
	2,3-Dimethylaniline	≤100 ppm	<100 ppm
	Related substances	≤0.2%	<0.2%
	Assay	99.0% ~ 100.5%	99.7%

(THIS BLANK IS EMPTY.)

Conclusion: *This batch complies with the specification of BP2008.*

Remark: Store in a tightly closed container, protected from light.

Reported by: **QA Manager:**

Add.: Caijiapo Economic And Technical Development Zone, Qishan County, Shaanxi Province, 722405 China

Tel: +86-917-2968776
Fax: +86-917-2968099

PVP K-30:

杭州南杭化工有限公司
NANHANG INDUSTRIAL CO.,LTD
地址:中国杭州市西湖区周浦乡姚家坞

CERTIFICATE OF ANALYSIS

Product	PVP K-30 USP/BP		
Batch No.	20051213	Quantity	2025KGS
Manufacture Date	DEC.,2005	Expiry Date	DEC.,2008

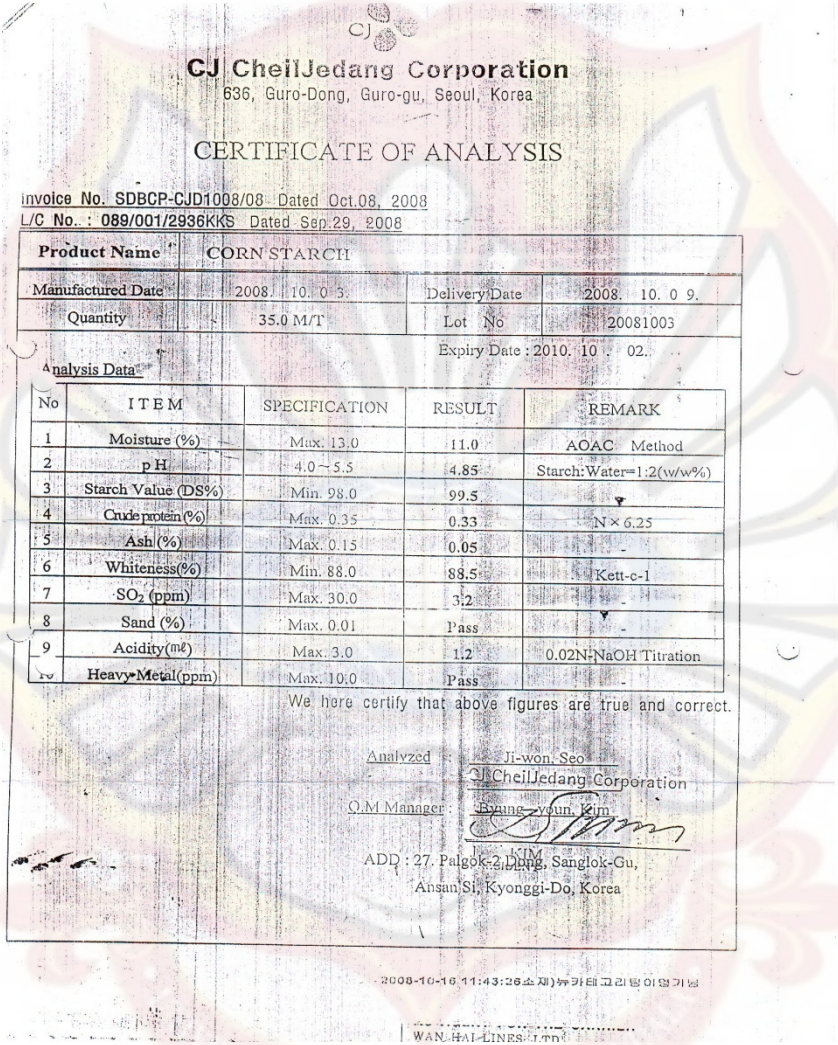
ITEMS	SPECIFICATIONS	TEST RESULTS
Characteristics	A white, fine powder	Complies
Identification	Positive	Positive
Water	5% max	2.8%
Residue on ignition	0.1% max	0.02%
K-Value	27-32	30.7
Heavy metals(Lead)	10ppm max	Complies
Nitrogen	11.5%-12.8%	12.2%
Vinylpyrrolidone	0.2% max	0.032%
Aldehydes	0.05% max	Complies
Ph Value	3.0-7.0	3.62
Hydrazine	1ppm max	Complies
Peroxides	400ppm max	Complies
Microbial Limits(By annual verification test)	Salmonalla	Negative
	Coli	Negative
	Coliforms <1CFU/gm	Conform
	Standard Plate Count<10,000CFU/gm	Conform
	Mold & Yeast <1,000 CFU/gm	Conform

Conclusion: IT CONFORMS USP/BP

Analyst: Wang liu ling Checker: li ling Head of Q.C.Dept: Wang xiao fang

megasetia
PT. MEGASETIA AGUNG KIMIA

Amilum Jagung:



CJ CheilJedang Corporation
636, Guro-Dong, Guro-gu, Seoul, Korea

CERTIFICATE OF ANALYSIS

Invoice No. SDBCP-CJD1008/08 Dated Oct.08, 2008
L/C No. : 089/001/2936KKS Dated Sep.29, 2008

Product Name	CORN STARCH		
Manufactured Date	2008. 10. 03.	Delivery Date	2008. 10. 09.
Quantity	35.0 M/T	Lot No	20081003

Expiry Date : 2010. 10. 02.

Analysis Data

No	ITEM	SPECIFICATION	RESULT	REMARK
1	Moisture (%)	Max. 13.0	11.0	AOAC Method
2	p H	4.0~5.5	4.85	Starch:Water=1:2(w/w%)
3	Starch Value (DS%)	Min. 98.0	99.5	〃
4	Crude protein (%)	Max. 0.35	0.33	N×6.25
5	Ash (%)	Max. 0.15	0.05	〃
6	Whiteness(%)	Min. 88.0	88.5	Kett-c-1
7	SO_2 (ppm)	Max. 30.0	3.2	〃
8	Sand (%)	Max. 0.01	Pass	〃
9	Acidity(㎖)	Max. 3.0	1.2	0.02N-NaOH Titration
10	Heavy Metal(ppm)	Max. 10.0	Pass	〃

We here certify that above figures are true and correct.

Analyzed : Ji-won, Seo
CJ CheilJedang Corporation

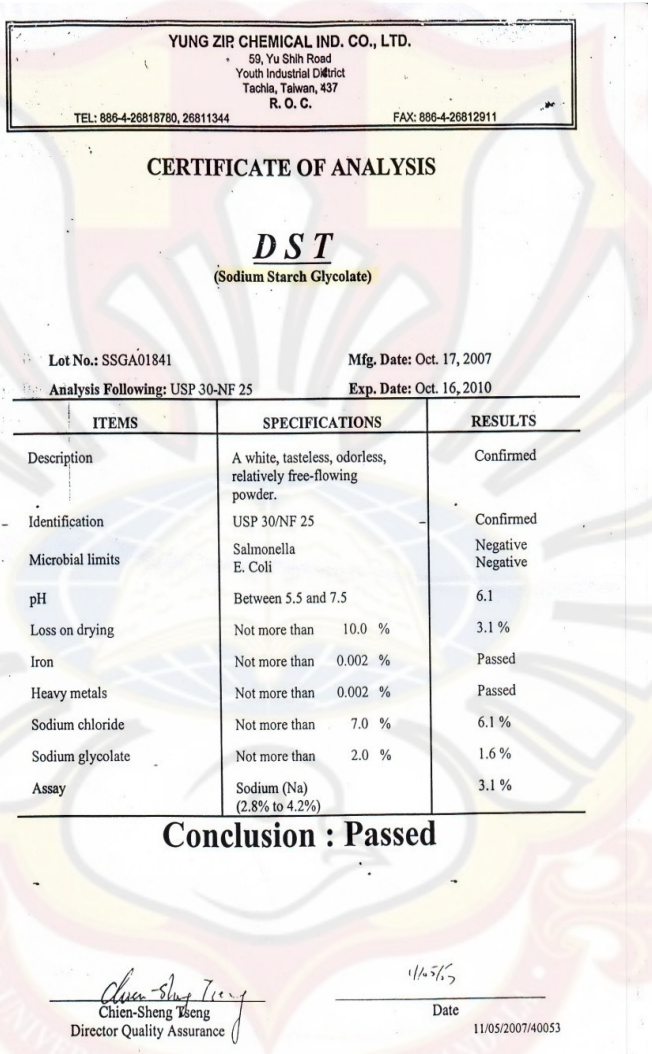
Q.M Manager : Byung-youn, Kim
J. KIM

ADD : 27, Palgok-2,Dong, Sanglok-Gu,
Ansan Si, Kyonggi-Do, Korea

2008-10-16 11:43:26쇼제)뉴카테고리팩이엠기능

WAN HAI LINES LTD

Natrium Pati Glikolat:



YUNG ZIP CHEMICAL IND. CO., LTD.
59, Yu Shih Road
Youth Industrial District
Tachia, Taiwan, 437
R. O. C.
TEL: 886-4-26818780, 26811344 FAX: 886-4-26812911

CERTIFICATE OF ANALYSIS

D S T
(Sodium Starch Glycolate)

Lot No.: SSGA01841 **Mfg. Date:** Oct. 17, 2007
Analysis Following: USP 30-NF 25 **Exp. Date:** Oct. 16, 2010

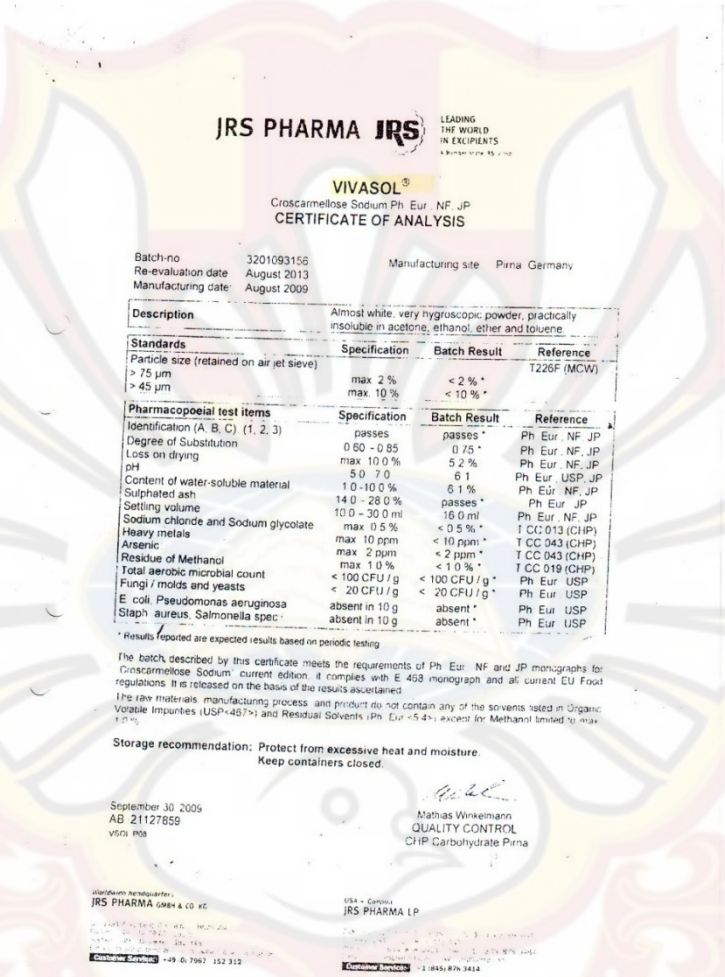
ITEMS	SPECIFICATIONS	RESULTS
Description	A white, tasteless, odorless, relatively free-flowing powder.	Confirmed
Identification	USP 30/NF 25	Confirmed
Microbial limits	Salmonella E. Coli	Negative Negative
pH	Between 5.5 and 7.5	6.1
Loss on drying	Not more than 10.0 %	3.1 %
Iron	Not more than 0.002 %	Passed
Heavy metals	Not more than 0.002 %	Passed
Sodium chloride	Not more than 7.0 %	6.1 %
Sodium glycolate	Not more than 2.0 %	1.6 %
Assay	Sodium (Na) (2.8% to 4.2%)	3.1 %

Conclusion : Passed

Chien-Sheng Tseng
Director Quality Assurance

Date
11/05/2007/40053

Ac-Di-Sol:



JRS PHARMA JRS LEADING THE WORLD IN EXCIPIENTS

VIVASOL®

Croscarmellose Sodium Ph. Eur., NF, JP

CERTIFICATE OF ANALYSIS

Batch-no 3201093156 Manufacturing site Pirna, Germany
Re-evaluation date August 2013
Manufacturing date August 2009

Description	Almost white, very hygroscopic powder, practically insoluble in acetone, ethanol, ether and toluene

Standards	Specification	Batch Result	Reference
Particle size (retained on air jet sieve)			T226F (MCW)
> 75 µm	max. 2 %	< 2 % *	
> 45 µm	max. 10 %	< 10 % *	

Pharmacopoeial test items	Specification	Batch Result	Reference
Identification (A, B, C) (1, 2, 3)	passes	passes *	Ph. Eur., NF, JP
Degree of Substitution	0.60 - 0.85	0.75 *	Ph. Eur., NF, JP
Loss on drying	max. 10.0 %	5.2 %	Ph. Eur., NF, JP
pH	5.0 - 7.0	6.1	Ph. Eur., USP, JP
Content of water-soluble material	1.0 - 10.0 %	6.1 %	Ph. Eur., NF, JP
Sulphated ash	14.0 - 28.0 %	passes *	Ph. Eur., JP
Settling volume	10.0 – 30.0 ml	16.0 ml	Ph. Eur., NF, JP
Sodium chloride and Sodium glycolate	max. 0.5 %	< 0.5 % *	T CC 013 (CHP)
Heavy metals	max. 10 ppm	< 10 ppm *	T CC 043 (CHP)
Arsenic	max. 2 ppm	< 2 ppm *	T CC 043 (CHP)
Residue of Methanol	max. 1.0 %	< 1.0 % *	T CC 019 (CHP)
Total aerobic microbial count	< 100 CFU / g	< 100 CFU / g *	Ph. Eur., USP
Fungi / molds and yeasts	< 20 CFU / g	< 20 CFU / g *	Ph. Eur., USP
E. coli, Pseudomonas aeruginosa	absent in 10 g	absent *	Ph. Eur., USP
Staph. aureus, Salmonella spec.	absent in 10 g	absent *	Ph. Eur., USP

* Results reported are expected results based on periodic testing

The batch described by this certificate meets the requirements of Ph. Eur., NF and JP monographs for "Croscarmellose Sodium" current edition. It complies with E 468 monograph and all current EU Food regulations. It is released on the basis of the results ascertained.

The raw materials, manufacturing process and product do not contain any of the solvents listed in Organic Volatile Impurities (USP<467>) and Residual Solvents (Ph. Eur.<5.4>), except for Methanol limited to max. 1.0 %.

Storage recommendation: Protect from excessive heat and moisture. Keep containers closed.

September 30, 2009
AB 21127859
V50L P08

Mathias Winkelmann
QUALITY CONTROL
CHP Carbohydrate Pirna

Worldwide headquarters
JRS PHARMA GMBH & CO. KG
Customer Service: +49 (0) 7967 152 312

USA + Canada
JRS PHARMA LP
Customer Service: +1 (845) 876 3414

Talkum:

SUN PLAN DEVELOPMENT LTD.

CERTIFICATE OF ANALYSIS

INVOICE NO. 1514

TO: PT BRATACO JL. KELENTENG NO. 8
BANDUNG QQ PT BRATACO JL. MANGGA
BESAR V/5 JAKARTA, INDONESIA
NPWP.01.130.689.1-032.001

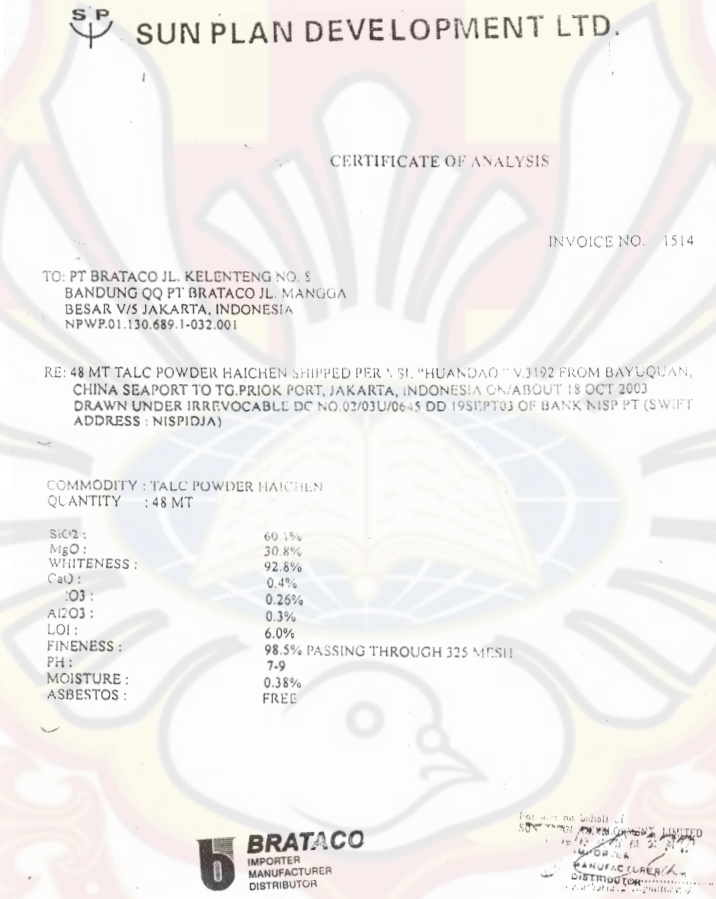
RE: 48 MT TALC POWDER HAICHEN SHIPPED PER M.SL "HUANDAO " V.3192 FROM BAYUQUAN,
CHINA SEAPORT TO TG.PRIOK PORT, JAKARTA, INDONESIA ON/ABOUT 18 OCT 2003
DRAWN UNDER IRREVOCABLE DC NO.02/03U/0645 DD 19SEPT03 OF BANK NISP PT (SWIFT
ADDRESS : NISPIDJA)

COMMODITY : TALC POWDER HAICHEN
QUANTITY : 48 MT

SiO2 :	60.1%
MgO :	30.8%
WHITENESS :	92.8%
CaO :	0.4%
:O3 :	0.26%
Al2O3 :	0.3%
LOI :	6.0%
FINENESS :	98.5% PASSING THROUGH 325 MESH
PH :	7-9
MOISTURE :	0.38%
ASBESTOS :	FREE

BRATACO
IMPORTER
MANUFACTURER
DISTRIBUTOR

Magnesium Stearat:



SUN PLAN DEVELOPMENT LTD.

CERTIFICATE OF ANALYSIS

INVOICE NO. 1514

TO: PT BRATACO JL. KELENTENG NO. 8
BANDUNG QQ PT BRATACO JL. MANGGA
BESAR V/8 JAKARTA, INDONESIA
NPWP.01.130.689.1-032.001

RE: 48 MT TALC POWDER HAICHEN SHIPPED PER V.SL "HUANDAO " V.3192 FROM BAYUQUAN, CHINA SEAPORT TO TG.PRIOK PORT, JAKARTA, INDONESIA ON/ABOUT 18 OCT 2003 DRAWN UNDER IRREVOCABLE DC NO.02/03U/0645 DD 19SEPT03 OF BANK NISP PT (SWIFT ADDRESS : NISPIDJA)

COMMODITY : TALC POWDER HAICHEN
QUANTITY : 48 MT

SiO2 :	60.1%
MgO :	30.8%
WHITENESS :	92.8%
CaO :	0.4%
:O3 :	0.25%
Al2O3 :	0.3%
LOI :	6.0%
FINENESS :	98.5% PASSING THROUGH 325 MESH
PH :	7-9
MOISTURE :	0.38%
ASBESTOS :	FREE

BRATACO
IMPORTER
MANUFACTURER
DISTRIBUTOR

Laktosa:

DMV INTERNATIONAL

Certificate of analysis

Page 2/2

Issue date
18.02.2005
Purchase order
002879/PH/01578
Delivery item
80270238 000020
Order item
231054 000020
Total Quantity Item
16.000 KG

Lot: 10209286
Manufacture date: 01.2005

Quantity: 16.000 KG
Expiry date: 12.2007

Characteristic	Unit	SPECIFICATION Lower Limit	Upper Limit	Value
Particle size (PSD) % <250 µm	%	99,0	100,0	100,0
Standard plate count	cfu/g	0	100	<10
Yeasts and Moulds	cfu/g	0	10	<10
Enterobacteriaceae	cfu/g	0	1	0
E. coli in 10 g				negative
Salmonella in 100g				negative

J. Hermans
QA Manager

(This is an electronic document)

Natrium Hidroksida:

Certificate

Product Name	Sodium hydroxide, puriss. p.a., ACS reagent, reag. Ph. Eur., (K ≤0.02%), ≥99%, pellets
Product Number	30620
Product Brand	Riedel-de Haën
CAS Number	1310-73-2
Molecular Formula	NaOH
Molecular Weight	40.00
	Reag. ACS, Reag. Ph. Eur.
assay	99.1 %
assay of Na2CO3	< 1 %
aluminium (Al)	< 0.0005 %
arsenic (As)	< 0.0001 %
calcium (Ca)	< 0.0005 %
copper (Cu)	< 0.0005 %
iron (Fe)	< 0.0005 %
mercury (Hg)	< 0.000005 %
potassium (K)	< 0.02 %
magnesium (Mg)	< 0.0005 %
nickel (Ni)	< 0.0005 %
lead (Pb)	< 0.0002 %
zinc (Zn)	< 0.0005 %
heavy metals (as Pb)	< 0.0005 %
heavy metals (as Ag)	< 0.002 %
chloride (Cl)	< 0.0005 %
phosphate (PO4)	< 0.0005 %
silicate (as SiO2)	< 0.001 %
sulfate (SO4)	< 0.0005 %
total N	< 0.0003 %
appearance of the solution	complying
	Identity, assay and impurities are complying to the monographs of the above mentioned pharmacopeias/codices.
QC-Releasedate	15.May.07
rec. Retest Date	01.Sep.10

Andreas Tomczak
Quality Manager
Seelze Germany

Kalium Dihidrogen Fosfat:

Certificate

Product Name	Potassium phosphate monobasic, puriss. p.a., reag. ISO, reag. Ph. Eur., anhydrous, buffer substance, 99.5-100.5% (calc. on dry substance)
Product Number	30407
Product Brand	Riedel-de Haën
CAS Number	7778-77-0
Molecular Formula	KH_2PO_4
Molecular Weight	136.09

	Reag. ISO, Reag. Ph. Eur.
assay (calc. to the dried substance	) 99.7 %
water insoluble matter	< 0.005 %
loss on drying (130°C)	0.01 %
pH (5 %, 20°C)	4.3
arsenic (As)	< 0.00005 %
iron (Fe)	< 0.0005 %
sodium (Na)	0.002 %
heavy metals (as Pb)	< 0.0005 %
KMnO4 red. matter (as O)	complying
chloride (Cl)	< 0.0005 %
sulphate (SO4)	< 0.003 %
total N	< 0.001 %
appearance of the solution	complying
	Identity, assay and impurities are complying to the monographs of the above mentioned pharmacopelas/codices.
QC-Releasedate	18.Sep.06
rec. Retest Date	25.Feb.10

Andreas Tomczak
Quality Manager
Seelze Germany

LAMPIRAN I

TABEL UJI r

DEGREES OF FREEDOM (DF)	5 PERCENT	1 PERCENT	DEGREES OF FREEDOM (DF)	5 PERCENT	1 PERCENT
1	.997	1.000	24	.388	.496
2	.950	.990	25	.381	.487
3	.878	.959	26	.374	.478
4	.811	.917	27	.367	.470
5	.754	.874	28	.361	.463
6	.707	.834	29	.355	.456
7	.666	.798	30	.349	.449
8	.632	.765	35	.325	.418
9	.602	.735	40	.304	.393
10	.576	.708	48	.288	.372
11	.553	.684	50	.273	.354
12	.532	.661	60	.250	.325
13	.514	.641	70	.232	.302
14	.497	.623	80	.217	.283
15	.482	.606	90	.205	.267
16	.468	.590	100	.195	.254
17	.456	.575	125	.174	.228
18	.444	.561	150	.159	.208
19	.433	.549	200	.138	.181
20	.423	.537	300	.113	.148
21	.413	.526	400	.098	.128
22	.404	.515	500	.088	.115
23	.396	.505	1000	.062	.081

Dikutip dari: Soedigdo & Soedigdo (1977)

LAMPIRAN J

TABEL UJI HSD (0,05)

d.k. \ k	2	3	4	5	6	7	8	9	10	11
5	3.64	4.60	5.22	5.67	6.03	6.33	6.58	6.80	6.99	7.17
6	3.46	4.34	4.90	5.30	5.63	5.90	6.12	6.32	6.49	6.65
7	3.34	4.16	4.68	5.06	5.36	5.61	5.82	6.00	6.16	6.30
8	3.26	4.04	4.53	4.89	5.17	5.40	5.60	5.77	5.92	6.05
9	3.20	3.95	4.41	4.76	5.02	5.24	5.43	5.59	5.74	5.87
10	3.15	3.88	4.33	4.65	4.91	5.12	5.30	5.46	5.60	5.72
11	3.11	3.82	4.26	4.57	4.82	5.03	5.20	5.35	5.49	5.61
12	3.08	3.77	4.20	4.51	4.75	4.95	5.12	5.27	5.39	5.51
13	3.06	3.73	4.15	4.45	4.69	4.88	5.05	5.19	5.32	5.43
14	3.03	3.70	4.11	4.41	4.64	4.83	4.99	5.13	5.25	5.36
15	3.01	3.67	4.08	4.37	4.59	4.78	4.94	5.08	5.20	5.31
16	3.00	3.65	4.05	4.33	4.56	4.74	4.90	5.03	5.15	5.26
17	2.98	3.63	4.02	4.30	4.52	4.71	4.86	4 99	5.11	5.21
18	2.97	3.61	4.00	4.28	4.49	4.67	4.82	4.96	5.07	5.17
19	2.96	3.59	3.98	4.25	4.47	4.65	4.79	4.92	5.04	5.14
20	2.95	3.58	3.96	4.23	4.45	4.62	4.77	4.90	5.01	5.11
24	2.92	3.53	3.90	4.17	4.37	4.54	4.68	4.81	4.92	5.01
30	2.89	3.49	3.85	4.10	4.30	4.46	4.60	4.72	4.82	4.92
40	2.86	3.44	3.79	4.04	4.23	4.39	4.52	4.63	4.73	4.82
60	2.83	3.40	3.74	3.98	4.16	4.31	4.44	4.55	4.65	4.73
120	2.80	3.36	3.68	3.92	4.10	4.24	4.36	4.47	4.56	4.64
∞	2.77	3.31	3.63	3.86	4.03	4.17	4.29	4.39	4.47	4.55

Catatan kaki: Dari *Annals of mathematical statistics.* Diulang cetak seizin penerbit, The Institute of Mathematical Statistics.

Sumber: Schefler (1987).

LAMPIRAN K

HASIL UJI STATISTIK KEKERASAN TABLET ANTAR FORMULA

Anova: Single Factor

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
Column 1	3	25,45	8,483333	0,043233
Column 2	3	25,77	8,59	0,0093
Column 3	3	22,59	7,53	0,0147
Column 4	3	19,4	6,466667	0,001733

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	8,812492	3	2,937497	170,372	1,38E-07	4,066181
Within Groups	0,137933	8	0,017242			
Total	8,950425	11				

Karena F hitung = 170,372 > F table = 4,07; maka H_0 ditolak dan ada perbedaan bermakna antar formula.

		F I	F II	F III		F IV	
	Mean	8,483333	8,59	7,53		6,466667	
F I	8,483333	0	0,106667	-0,95333	*	-2,01667	*
F II	8,59		0	-1,06	*	-2,12333	*
F III	7,53			0		-1,06333	*
F IV	6,466667					0	

Keterangan:
Nilai HSD = 0,265241
* = Perbedaan signifikan, karena selisihnya > nilai HSD

LAMPIRAN L

HASIL UJI STATISTIK KERAPUHAN TABLET ANTAR FORMULA

Anova: Single Factor

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
Column 1	3	4,87	1,623333	0,047233
Column 2	3	4,21	1,403333	0,008633
Column 3	3	2,14	0,713333	0,001233
Column 4	3	1,94	0,646667	0,001233

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	2,1626	3	0,720867	49,43086	1,65E-05	4,066181
Within Groups	0,116667	8	0,014583			
Total	2,279267	11				

Karena F hitung = 49,43086 > F table = 4,07; maka H_0 ditolak dan ada perbedaan bermakna antar formula.

		F I	F II	F III		F IV	
	Mean	1,623333	1,403333	0,713333		0,646667	
F I	1,623333	0	-0,22	-0,91	*	-0,97667	*
F II	1,403333		0	-0,69	*	-0,75667	*
F III	0,713333			0		-0,06667	
F IV	0,646667					0	

Keterangan:

Nilai HSD = 0,243938

* = Perbedaan signifikan, karena selisihnya > nilai HSD

LAMPIRAN M

HASIL UJI STATISTIK WAKTU HANCUR TABLET ANTAR FORMULA

Anova: Single Factor

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
Column 1	3	57,2	19,06667	0,563333
Column 2	3	52	17,33333	0,303333
Column 3	3	35,4	11,8	0,07
Column 4	3	31	10,33333	0,303333

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	160,3867	3	53,46222	172,4588	1,31E-07	4,066181
Within Groups	2,48	8	0,31			
Total	162,8667	11				

Karena F hitung = 172,4588 > F table = 4,07; maka H_0 ditolak dan ada perbedaan bermakna antar formula.

		F I	F II		F III		F IV	
	Mean	19,06667	17,33333		11,8		10,33333	
F I	1,623333	0	-1,73333	*	-7,26667	*	-8,73333	*
F II	1,403333		0		-5,53333	*	-7	*
F III	0,713333				0		-1,46667	*
F IV	0,646667						0	

Keterangan:

Nilai HSD = 1,124688

* = Perbedaan signifikan, karena selisihnya > nilai HSD

LAMPIRAN N

HASIL UJI STATISTIK DISOLUSI TABLET ANTAR FORMULA

Anova: Single Factor

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
Column 1	3	231,63	77,21	3,9153
Column 2	3	226,25	75,41667	4,060233
Column 3	3	248,82	82,94	53,5087
Column 4	3	264,75	88,25	33,7012

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	305.5662	3	101.8554	4.280294	0.0444	4.06618
Within Groups	190.3709	8	23.79636			
Total	495.9371	11				

Karena F hitung = 4,280294 > F table = 4,07; maka H_0 ditolak dan ada perbedaan bermakna antar formula.

		F I	F II	F III	F IV	
	Mean	77,21	75,41667	82,94	88,25	
F I	77,21	0	-1,79333	5,73	11,04	*
F II	75,41667		0	7,523333	12,83333	*
F III	82,94			0	5,31	
F IV	88,25				0	

Keterangan:

Nilai HSD = 9,853865

* = Perbedaan signifikan, karena selisihnya > nilai HSD

LAMPIRAN O

HASIL UJI STATISTIK PENETAPAN KADAR TABLET ASAM MEFENAMAT ANTAR FORMULA

Anova: Single Factor

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
Column 1	3	297.23	99.07667	0.488133
Column 2	3	301.57	100.5233	0.494433
Column 3	3	299.66	99.88667	0.308033
Column 4	3	303.44	101.1467	0.490033

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	7.0615	3	2.353833	2.673459	0.0265	4.06618
Within Groups	3.561267	8	0.445158			
Total	10.62277	11				

Karena F hitung = 2,67 < F table = 4,07; maka H_0 diterima dan tidak ada perbedaan bermakna antar formula.

LAMPIRAN P

UJI F KURVA BAKU PENETAPAN KADAR

Uji Kesamaan Regresi (NaOH)

Replikasi 1

Konsentrasi	Absorbansi	X^2	Y^2	XY
14,196	0,308	201,5264	0,094864	4,372368
16,224	0,338	263,2182	0,114244	5,483712
18,252	0,386	333,1355	0,148996	7,045272
20,28	0,424	411,2784	0,179776	8,59872
22,308	0,459	497,6469	0,210681	10,23937

Replikasi 2

Konsentrasi	Absorbansi	X^2	Y^2	XY
14,112	0,306	199,1485	0,093636	4,318272
16,128	0,35	260,1124	0,1225	5,6448
18,144	0,387	329,2047	0,149769	7,021728
20,16	0,438	406,4256	0,191844	8,83008
22,176	0,463	491,775	0,214369	10,26749

Replikasi 3

Konsentrasi	Absorbansi	X^2	Y^2	XY
14,14	0,314	199,9396	0,098596	4,43996
16,16	0,332	261,1456	0,110224	5,36512
18,18	0,367	330,5124	0,134689	6,67206
20,2	0,39	408,04	0,1521	7,878
22,22	0,417	493,7284	0,173889	9,26574

	S X^2	SXY	S Y^2	N	SSi	RDF
Replikasi 1	1706,805	35,73944	0,748561	5	0,727622	4
Replikasi 2	1686,666	36,08237	0,772118	5	0,750725	4
Replikasi 3	1693,366	33,62088	0,669498	5	0,649644	4
Total	5086,838	105,4427	2,190177		2,12799	
SSc=	2,169448					
F=	0,116893					

LAMPIRAN Q

UJI F KURVA BAKU DISOLUSI

Uji Kesamaan Regresi (Dapar Fosfat pH 7,4)

Replikasi 1

Konsentrasi	Absorbansi	X^2	y^2	xy
14,011	0,305	196,3081	0,093025	4,273355
16,013	0,336	256,4162	0,112896	5,380368
18,014	0,388	324,5042	0,150544	6,989432
20,016	0,428	400,6403	0,183184	8,566848
22,018	0,46	484,7923	0,2116	10,12828

Replikasi 2

Konsentrasi	Absorbansi	X^2	y^2	xy
14,014	0,302	196,3922	0,091204	4,232228
16,016	0,35	256,5123	0,1225	5,6056
18,018	0,381	324,6483	0,145161	6,864858
20,02	0,429	400,8004	0,184041	8,58858
22,022	0,44	484,9685	0,1936	9,68968

Replikasi 3

Konsentrasi	Absorbansi	X^2	y^2	xy
14,006	0,31	196,168	0,0961	4,34186
16,006	0,348	256,192	0,121104	5,570088
18,007	0,379	324,252	0,143641	6,824653
20,008	0,438	400,3201	0,191844	8,763504
22,009	0,463	484,3961	0,214369	10,19017

	S X^2	SXY	S Y^2	N	SSi	RDF
Replikasi 1	1662,661	35,33828	0,751249	5	0,729995	4
Replikasi 2	1663,322	34,98095	0,736506	5	0,715475	4
Replikasi 3	1661,328	35,69027	0,767058	5	0,745575	4
Total	4987,311	106,0095	2,254813		2,191045	
SSc=	2,233557					
F=	0,116416					

LAMPIRAN R

HASIL UJI ANAVA KEKERASAN TABLET DENGAN *DESIGN-EXPERT*

Use your mouse to right click on individual cells for definitions

Response 1 Kekerasan tablet

ANOVA for selected factorial model

Analysis of variance table [Partial sum of squares - Type III]

Source	Sum of Squares	df	Mean Square	F Value	p-value Prob > F	
Model	7.45	3	2.48	13.22	0.0018	significant
A-Macam pengikat	*7.10*	*1*	*7.10*	*37.80*	*0.0003*	
B-Macam penghancur	*0.099*	*1*	*0.099*	*0.53*	*0.4885*	
AB	*0.25*	*1*	*0.25*	*1.33*	*0.2825*	
Pure Error	1.50	8	0.19			
Cor Total	8.95	11				

The Model F-value of 13.22 implies the model is significant. There is only a 0.18% chance that a "Model F-Value" this large could occur due to noise.

Values of "Prob > F" less than 0.0500 indicate model terms are significant.
In this case A are significant model terms.

Values greater than 0.1000 indicate the model terms are not significant.
If there are many insignificant model terms (not counting those required to support hierarchy), model reduction may improve your model.

Std. Dev.	0.43	R-Squared	0.8321
Mean	7.77	Adj R-Squared	0.7692
C.V. %	5.58	Pred R-Squared	0.6223
PRESS	3.38	Adeq Precision	7.300

The "Pred R-Squared" of 0.6223 is in reasonable agreement with the "Adj R-Squared" of 0.7692.

"Adeq Precision" measures the signal to noise ratio. A ratio greater than 4 is desirable. Your ratio of 7.300 indicates an adequate signal. This model can be used to navigate the design space.

Factor	Coefficient Estimate	df	Standard Error	95% CI Low	95% CI High	VIF
Intercept	7.77	1	0.13	7.48	8.06	
A-Macam pengikat	-0.77	1	0.13	-1.06	-0.48	1.00
B-Macam penghancur	-0.091	1	0.13	-0.38	0.20	1.00
AB	-0.14	1	0.13	-0.43	0.14	1.00

Final Equation in Terms of Coded Factors:

Kekerasan tablet =

+7.77

-0.77 * A

-0.091 * B

-0.14 * A * B

Final Equation in Terms of Actual Factors:

Kekerasan tablet =

+7.76750

-0.76917 * Macam pengikat

-0.090833 * Macam penghancur

-0.14417 * Macam pengikat * Macam penghancur

The Diagnostics Case Statistics Report has been moved to the Diagnostics Node.

In the Diagnostics Node, Select Case Statistics from the View Menu.

Proceed to Diagnostic Plots (the next icon in progression). Be sure to look at the:

1) Normal probability plot of the studentized residuals to check for normality of residuals.

2) Studentized residuals versus predicted values to check for constant error.

3) Externally Studentized Residuals to look for outliers, i.e., influential values.

4) Box-Cox plot for power transformations.

If all the model statistics and diagnostic plots are OK, finish up with the Model Graphs icon.

LAMPIRAN S

HASIL UJI ANAVA KERAPUHAN TABLET DENGAN *DESIGN-EXPERT*

Use your mouse to right click on individual cells for definitions.

Response **2** **Kerapuhan tablet**

ANOVA for selected factorial model

Analysis of variance table [Partial sum of squares - Type III]

Source	**Sum of Squares**	**df**	**Mean Square**	**F Value**	**p-value Prob > F**	
Model	2.16	3	0.72	47.04	< 0.0001	significant
A-Macam pengikat	*2.08*	*1*	*2.08*	*136.31*	*< 0.0001*	
B-Macam penghancur	*0.046*	*1*	*0.046*	*2.99*	*0.1223*	
AB	*0.028*	*1*	*0.028*	*1.83*	*0.2126*	
Pure Error	0.12	8	0.015			
Cor Total	2.28	11				

The Model F-value of 47.04 implies the model is significant. There is only a 0.01% chance that a "Model F-Value" this large could occur due to noise.

Values of "Prob > F" less than 0.0500 indicate model terms are significant. In this case A are significant model terms.

Values greater than 0.1000 indicate the model terms are not significant. If there are many insignificant model terms (not counting those required to support hierarchy), model reduction may improve your model.

Std. Dev.	0.12	R-Squared	0.9464
Mean	1.10	Adj R-Squared	0.9262
C.V. %	11.27	Pred R-Squared	0.8793
PRESS	0.28	Adeq Precision	13.403

The "Pred R-Squared" of 0.8793 is in reasonable agreement with the "Adj R-Squared" of 0.9262.

"Adeq Precision" measures the signal to noise ratio. A ratio greater than 4 is desirable. Your ratio of 13.403 indicates an adequate signal. This model can be used to navigate the design space.

Factor	Coefficient Estimate	df	Standard Error	95% CI Low	95% CI High	VIF
Intercept	1.10	1	0.036	1.01	1.18	
A-Macam pengikat	-0.42	1	0.036	-0.50	-0.33	1.00
B-Macam penghancur	-0.062	1	0.036	-0.14	0.021	1.00
AB	0.048	1	0.036	-0.034	0.13	1.00

Final Equation in Terms of Coded Factors:

Kerapuhan tablet =

+1.10

-0.42 * A

-0.062 * B

+0.048 * A * B

Final Equation in Terms of Actual Factors:

Kerapuhan tablet =

+1.09667

-0.41667 * Macam pengikat

-0.061667 * Macam penghancur

+0.048333 * Macam pengikat * Macam penghancur

The Diagnostics Case Statistics Report has been moved to the Diagnostics Node.

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Proceed to Diagnostic Plots (the next icon in progression). Be sure to look at the:

1) Normal probability plot of the studentized residuals to check for normality of residuals.

2) Studentized residuals versus predicted values to check for constant error.

3) Externally Studentized Residuals to look for outliers, i.e., influential values.

4) Box-Cox plot for power transformations.

If all the model statistics and diagnostic plots are OK, finish up with the Model Graphs icon.

LAMPIRAN T

HASIL UJI ANAVA WAKTU HANCUR TABLET DENGAN *DESIGN-EXPERT*

Use your mouse to right click on individual cells for definitions.

Response 3 Waktu hancur

ANOVA for selected factorial model

Analysis of variance table [Partial sum of squares - Type III]

Source	Sum of Squares	df	Mean Square	F Value	p-value Prob > F	
Model	151.08	3	50.36	80.58	< 0.0001	significant
A-Macam pengikat	*147.70*	*1*	*147.70*	*236.32*	*< 0.0001*	
B-Macam penghancur	*1.84*	*1*	*1.84*	*2.95*	*0.1245*	
AB	*1.54*	*1*	*1.54*	*2.47*	*0.1550*	
Pure Error	5.00	8	0.63			
Cor Total	156.08	11				

The Model F-value of 80.58 implies the model is significant. There is only a 0.01% chance that a "Model F-Value" this large could occur due to noise.

Values of "Prob > F" less than 0.0500 indicate model terms are significant.
In this case A are significant model terms.

Values greater than 0.1000 indicate the model terms are not significant.
If there are many insignificant model terms (not counting those required to support hierarchy), model reduction may improve your model.

Std. Dev.	0.79	R-Squared	0.9680
Mean	14.58	Adj R-Squared	0.9560
C.V. %	5.42	Pred R-Squared	0.9279
PRESS	11.25	Adeq Precision	17.089

The "Pred R-Squared" of 0.9279 is in reasonable agreement with the "Adj R-Squared" of 0.9560.

"Adeq Precision" measures the signal to noise ratio. A ratio greater than 4 is desirable. Your ratio of 17.089 indicates an adequate signal. This model can be used to navigate the design space.

Factor	Coefficient Estimate	df	Standard Error	95% CI Low	95% CI High	VIF
Intercept	14.58	1	0.23	14.05	15.10	
A-Macam pengikat	-3.51	1	0.23	-4.03	-2.98	1.00
B-Macam penghancur	-0.39	1	0.23	-0.92	0.13	1.00
AB0.36	1	0.23	-0.17	0.88	1.00	

Final Equation in Terms of Coded Factors:

Waktu hancur =

+14.58

-3.51 * A

-0.39 * B

+0.36 * A * B

Final Equation in Terms of Actual Factors:

Waktu hancur =

+14.57500

-3.50833 * Macam pengikat

-0.39167 * Macam penghancur

+0.35833 * Macam pengikat * Macam penghancur

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3) Externally Studentized Residuals to look for outliers, i.e., influential values.

4) Box-Cox plot for power transformations.

If all the model statistics and diagnostic plots are OK, finish up with the Model Graphs icon.